

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-8. (cancelled)

9. (currently amended) A method of making flight safe for a rotary wing aircraft, the method comprising the steps of:

a) constructing a route for the aircraft;

b) causing the aircraft to follow the route ~~thus constructed~~; and

c) at least in part while following the route, calculating interference, ~~if any,~~ between the ~~constructed~~ route, a model of ~~the~~ a terrain overflown by the aircraft, and parameters relating to the aircraft and to ~~its outside the~~ environment outside the aircraft[[,]];

d) from said interference, in order to determine determining a safe route that is safe,

wherein, in order to enable the method to offer the aircraft the capacity to fly in all weathers and at any location, the method further comprises the steps of:

[[.]] constructing at least ~~the~~ initial route segments ~~and possibly the entire route~~; and

[[.]] while following the initial route segments, and independently of any instrument flight infrastructure, performing the making-safe operations of step c) on board the aircraft, ~~with acquisition of~~ by acquiring the parameters relating to the ~~terrain overflown,~~ to the aircraft[[,]] and to ~~its outside~~ the environment outside the aircraft, acquiring parameters relating to the terrain overflown, and performing the following operations automatically:

α) using the acquired parameters relating to the to the aircraft and to the environment outside the aircraft, and the acquired parameters relating to the terrain overflown ~~verifying to verify~~ the safety of ~~the an~~ actual ~~route~~ trajectory of the aircraft;

β) using the acquired parameters relating to the to the aircraft and to the environment outside the aircraft ~~verifying to verify~~ the safety of the aircraft ~~flight~~ the actual trajectory relative to ~~parameters acquired on board~~ any other aircraft; and

γ) providing, on board the aircraft, assistance in perception by presenting the interferences interference, the parameters relating ~~to the terrain overflown,~~ to the aircraft[[,]] and to ~~its outside~~ the environment outside the aircraft, and the parameters relating to the terrain overflown.

10. (currently amended) [[A]] The method according to claim 9, wherein, in step a), in order to determine a safe route for the aircraft, the following steps are performed:

a1) an operator constructs [[a]] the route for the aircraft using an interactive graphics route-construction tool (7) coupled to an interference calculator (2) and to a memory (4);

a2) determining a possible interference between the route and a model of the terrain overflown by the aircraft; and

a3) presenting ~~any~~ the possible interference to the operator to enable the operator to modify ~~the construction of~~ the route so as to cause the interference to disappear, the sequence of said steps a1) to a3) being repeated until all the interference, ~~if any,~~ has disappeared.

11. (currently amended) [[A]] The method according to claim 9, wherein, during step c $\alpha$ ) ~~of verifying the safety of the actual route of the aircraft,~~ the following steps are performed:

$\alpha$ 1) verifying that ~~the~~ a deviation between a theoretical route for the aircraft and ~~the~~ an actual position of the aircraft remains less than a predetermined value;

$\alpha$ 2) verifying that ~~the~~ an immediate future segment of the route of the aircraft is safe relative to a theoretical terrain; and

$\alpha$ 3) verifying that said immediate future segment of the route of the aircraft is safe relative to ~~real~~ an actual terrain.

12. (currently amended) [[A]] The method according to claim 9, wherein, in step cγ), at least when the aircraft is close to the ground, images ~~picked up~~ are acquired of the outside environment ~~are~~ and superposed on ~~the~~ a real outside view.

13. (currently amended) [[A]] The method according to claim 9, wherein, in step cγ), at least while the aircraft is at least at a predetermined distance from the ground, a safety line situated above ~~the~~ a relief is superposed on ~~the~~ a real outside view.

14. (currently amended) [[A]] The method according to claim 9, wherein, in step cγ), at least ~~some one of the following information is presented to a pilot of the aircraft;~~ the an hypsometric environment[[;]], ~~the an~~ an aviation environment[[;]], and [[·]] any aircraft situated at a distance from the aircraft ~~that is less than a predetermined distance~~ are presented to a pilot of the aircraft.

15. (currently amended) ~~Apparatus~~ An apparatus (1) for making a flight safe under instrument flying conditions and outside instrument flying infrastructures, the apparatus being on board or being capable of being mounted on board a rotary wing aircraft, the apparatus (1) comprising ~~at least:~~

[[·]] means (3) for acquiring parameters relating to the aircraft and to the ~~outside~~ environment outside the aircraft;

[[·]] display means (6);

[[·]] a navigation calculator (8) including an interference calculator (2) associated with a memory (4) for storing a constructed route and with a memory (5) containing a model of ~~the~~ a terrain to be overflowed;

wherein the apparatus (1) ~~being is suitable for implementing~~ configured to implement the method according to claim 9, and

wherein the apparatus (1) further includes at least one interactive graphics route-construction tool (7) coupled to the interference calculator (2) that serves, when actuated by an operator, to display a result on the display means (6) enabling the safe route to be constructed progressively, which route is stored in the memory (4)[[;]], ~~and~~ [[·]] a piloting system (9) connected to the interactive tool (7) and to the calculator (8) via a connection (10), the piloting system (9) ~~and~~ including a piloting screen.

16. (currently amended) ~~Apparatus~~ The apparatus according to claim 15, further including comprising:

at least one means (12) for providing assistance in perceiving the environment outside the aircraft.

17. (new) A method of making flight safe for a rotary wing aircraft, comprising:

from the aircraft while following a predetermined route, determining any interference between the predetermined route for the aircraft and a terrain to be overflowed by the aircraft;

providing assistance to a pilot of the aircraft in perceiving the environment outside the aircraft and the predetermined route;

providing assistance to the pilot in perceiving the determined interference;

modifying the predetermined route based on the determined interference to produce a safe route for the aircraft; and

causing said aircraft to follow the safe route,

wherein the determining step comprises the substeps of,

automatically employing instruments of the aircraft to acquire information, said instruments being not reliant upon terrestrial air navigation infrastructures, said acquired information relating to the aircraft and to the environment outside the aircraft, and

automatically using the acquired information to detect an interference in an immediate future trajectory of the aircraft based on a computer-based model of the terrain to be overflowed by the aircraft.

18. (new) The method according to claim 17, wherein the determining step further comprises the substeps of automatically using the acquired information to detect a deviation between the safe

route and the actual position of the aircraft being greater than a predetermined value, and warning the pilot of the detected deviation.

19. (new) The method according to claim 17, wherein the determining step further comprises the substep of automatically using the acquired information to detect the interference in the immediate future trajectory of the aircraft based on an actual terrain outside the aircraft.

20. (new) The method according to claim 17, wherein the determining step further comprises the substep of automatically using the acquired information to detect the interference in an actual trajectory of the aircraft resulting from another aircraft operating nearby the aircraft.

21. (new) The method according to claim 17, further comprising:  
while the aircraft is in flight, acquiring images of the environment outside the aircraft, and superposing the acquired images on an actual view of the environment outside the aircraft.

22. (new) The method according to claim 17, further comprising:  
superposing a safety line on an actual view of the environment outside the aircraft.

23. (new) The method according to claim 17, wherein a  
hypsonetric environment is presented to the pilot of the aircraft.